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CLEMENT K. STODDER, OF BROOKLINE, MASSACHUSETTS

FILLING AND BINDING COMPOSITION

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This invention relates to improvements in filling and binding compositions for general usage, and the principal object is to provide a composition in the form of a powder containing and requiring no readily flammable ingredients and which can be formed by the addition of water into a quick-setting plastic.

One of the objects of the invention is to provide a filler and binder of the character specified which, when set, will be of a non-brittle tenacious character capable of being readily worked as by sawing, cutting, planing, or grinding, and which is capable of being readily surfaced and polished.

Another object of the invention is to provide a filling and binding composition which, while hard, will be of such consistency and tenacity as to permit nails to be driven into it without cracking the material and which will "hold" the nail firmly.

Fillers of granular composition are widely used in carpentry, cabinet making, and the like, to fill cracks, holes, nail holes, and other recesses in wood, and other fibrous material, and another object of the invention is to provide a filling which is capable, when set, not only of being surfaced by usual tools and machine, but which may be stained and polished or painted closely to resemble the enclosing or adjacent fibrous material.

Another object of the invention is to provide a filling and binding composition which when set, particularly under pressure, will be non-shrinking and strongly adhesive to the materials which contact with it, whether fibrous or metallic, and therefore adapted to seal and cement joints not only of wood, and other fibrous materials, but also joints between metal parts including pipe joints and the like.

Another feature of the invention is to provide a filler of the character described which, when set, is substantially insoluble.

Another object of the invention is to provide a powdered composition comprising calcined gypsum having homogeneously intermingled therewith such proportion of a chemically inert filler having water-absorbing properties that when the powdered composition is thoroughly moistened sufficient moisture will be retained by the filler throughout the mass to insure complete hydration of the anhydrous calcium salt.

These and other objects and features of the invention are attained by providing a homogeneous mixture of finely powdered calcined gypsum (plaster of Paris) and finely powdered adhesive, preferably of vegetable origin, and a chemically inert filler having water-absorbent properties in proper proportions to produce the desired result.

Calcined gypsum (plaster of Paris) of a high grade, is finely ground and graded preferably by passing through a screen of at least one hundred mesh per square inch, or finer. A suitable chemically inert filter having water-absorbent properties is used in powdered form and desirably is of a fineness also to pass through the screen of one hundred mesh per square inch.

While such materials as infusorial earth, Fuller's earth, tripoli, and the like, having water-absorbent properties may be used as a filler, preferably volcanic ash finely pulverized to pass through a screen of at least one hundred mesh per square inch, is employed as it is free from crystallization, highly absorbent of water, and of a light or neutral color, and readily capable of receiving and retaining a stain.

A soluble adhesive in powdered form of a fineness to pass through a screen of one hundred mesh, or finer, is employed. Preferably the adhesive is of vegetable origin and desirably a derivative of starch. I have found that dextrine is particularly adapted for the purpose because of its tenacious adherence, when moistened and dry, to the minute granules of the calcium salt, and the filler. If desired, coloring matter may be added in such quantities as may be desired. Powdered sienna, or powdered burnt sienna, is particularly adapted for such purpose as it is a clay composition which also acts in part as a filler.

The ingredients above mentioned may be mixed in any suitable proportions comprising relatively small amounts of filler and adhesive. I have found that a very satisfactory composition is produced by the mixture of the